

REMARKS

The Office Action mailed August 18, 2006 has been carefully reviewed along with the references cited therein. In the Office Action, the Examiner indicated that drawings were acceptable. The specification was objected to for minor informalities. Claims 6 and 8 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 3, 5-9 and 16 were rejected under 35 U.S.C. § 102(b) as being anticipated by Martin et al. (U.S. Patent No. 5,165,884). Claims 3 and 10-13 were rejected under 35 U.S.C. § 102(b) as being anticipated by Durst et al. (U.S. Patent No. 5,522,723). Claims 3, 5-9 and 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Martin et al. in view of either Brock et al. (U.S. Patent No. 5,334,012), Ariyama et al. (U.S. Patent No. 6,053,962) or Hinke et al. (U.S. Patent No. 6,063,348). Claims 3 and 10-13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Durst et al. in view of either Brock et al., Ariyama et al. or Hinke et al. Claims 14 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Durst et al. alone or in view of Brock et al., Ariyama et al. or Hinke et al., as applied to claim 13 above, and further in view of Martin et al. Claim 4 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Martin et al. alone or in view of Brock et al., Ariyama et al. or Hinke et al. as applied to claim 3 above, and further in view of Noakes et al. (U.S. Patent No. 5,110,563).

In this response, Applicants have amended claims 3, 6, and 8. Applicants have also added claims 21-27 to the application. These claims will be discussed below.

Specification

Applicants submit with this amendment a copy of a substitute specification that includes the appropriate headings. Moreover, the title of the invention has been amended in accordance with the Examiner's suggestions.

Claim Rejections - 35 U.S.C. § 112

Claim 6 was rejected for lacking antecedent support in the disclosure to provide one with the "design" recited to achieve the claimed velocities. Claim 6 has been amended to recite "that the pre-mix chamber includes static mixing elements." Support for this amendment is found in originally filed Figure 1a and in the first full paragraph on page 24 of

the clean version of the amended specification. In view of the claim amendment to claim 6, Applicants respectfully consider that one skilled in the art now has been provided with the "design" to achieve the claimed velocities.

With regard to claim 8, Applicant has deleted the "the" prior to "free energy" in claim 8 thus curing the insufficient antecedent basis for this limitation.

Claim Rejections - 35 U.S.C. §§ 102 and 103

Each of the claims that were pending in the application were rejected as being anticipated by Martin et al. and Durst et al., as well as being found obvious in view of Martin et al. and Durst et al. In view of this, Applicants have provided arguments in support of amended claim 3 with regard to both anticipation and obviousness.

Claim 3 now recites "a low combustion value gas supply in order to conduct a low combustion value gas into the combustion chamber." Martin et al. disclose cooling pipes disposed in the combustion chamber (col. 5, lines 63-68). These pipes do not conduct a low combustion value gas into the combustion chamber. Instead, the gas remains separated from the combustion chamber. Similarly, Durst et al. also disclose cooling pipes disposed in the combustion chamber (see reference no. 9 in Figure 5), but these cooling pipes do not conduct a low combustion value gas into the combustion chamber. Instead, these cooling pipes maintain a low combustion value gas separate from the combustion chamber. Accordingly, neither of these references anticipates amended claim 3.

With regard to the obviousness objections, the Office Action states that each of Brock et al., Ariyama et al., and Hinke et al. teach providing a supply of low combustion value gas in order to reduce NOx emissions and control combustion temperature. The aforementioned documents disclose that the supply of water steam is used to reduce the temperature in the combustion chamber to reduce the NOx content of the exhaust gas; however, the burner according to Martin et al. achieves the NOx reduction primarily by a modification of the burner matrix, that is by a modification of the fluidizing bed (col. 3, line 56 onwards). It appears that a person of ordinary skill in the art has no motivation to look for other measures to reduce the temperatures in the combustion chamber of a pore burner, but instead will focus on the burner matrix to improve the effect. While it is disclosed in col. 5, lines 39-47 of Martin et al. that ambient air is injected into a plenum of the burner, this air injection is simply meant to adjust a temperature profile in the bed prior

to injecting the processing gas into the plenum. A cooling effect during the combustion process is not achieved thereby. The same arguments presented above with regard to Martin et al. also apply to Durst et al. Accordingly, it is submitted that amended claim 3 defines over the combination of references that have been applied.

New Claims

New claims 26 and 27 depend from claim 3. These claims are believed to further define over the cited references. Support for these claims is found, among other places, in originally filed Figures 6 and 7.

New independent claim 21 recites a system for combustion of a fuel/oxidant mixture. Support for this claim is found, among other places, in originally filed Figures 6 and 7. Claim 21 recites, among other things, "an additional supply line in communication with the low combustion value gas supply and the combustion chamber for introducing a low combustion value gas in to the combustion chamber to mix with the at least one of fuel and an oxidation agent." Neither Martin et al. nor Durst et al. disclose an additional supply line in communication with a low combustion value gas supply and the combustion chamber for introducing a low combustion value gas into the combustion chamber. As discussed above, both Martin et al. and Durst et al. keep any low combustion value gases separate from the combustion chamber. In view of this, claim 21 is believed to define over the cited references.

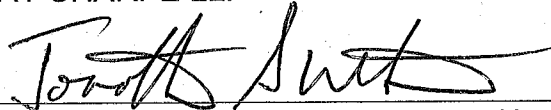
New independent claim 25 recites, among other things, "a pre-mix chamber disposed upstream from and in communication with the inlet of the combustion chamber" and "an additional supply line in communication with the low combustion value gas supply and the pre-mix chamber." This limitation is not found in either Martin et al. nor Durst et al. In view of this, claim 25 is believed to define over the cited references.

CONCLUSION

For the reasons detailed above, it is respectfully submitted all claims remaining in the application are now in condition for allowance. Accordingly, an early indication of the same is earnestly solicited. In any event, should the Examiner consider personal contact advantageous to the disposition of this case, he is encouraged to telephone the undersigned at the number listed below.

Respectfully submitted,

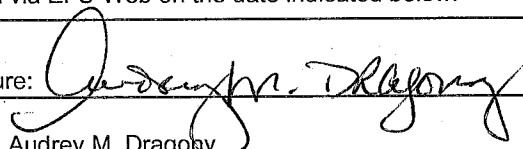
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